REMARKS

An Excess Claim Fee Payment Letter is submitted herewith to cover the cost of 2 excess total claims. A Petition and Fee for One Month Extension of Time is submitted herewith.

Claims 1-22 are all the claims presently pending in the application. Claims 1, 3, and 5 have been amended to more particularly define the invention. Claims 20-22 have been added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-6, 8-15 and 18 stand rejected under 35 U.S.C. § 102(b) as being allegedly unpatentable over Yovanof et al. (US Patent 5,677,689). Claims 7, 16, 17 and 19 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yovanof in view of Kuniba (US Patent 6,697,529).

These rejections are respectfully traversed in view of the following discussion.

I.   THE CLAIMED INVENTION

An exemplary aspect of the claimed invention (e.g., as recited in claim 1) is directed to an image compression method for compressing image data which includes storing compression characteristics data indicating compression characteristics of plural types of images in advance, acquiring an initial compression parameter, performing a compression process on image data of an image to be compressed based on the initial compression parameter, acquiring a corrective compression parameter, and performing another compression process on image data of an image to be compressed based on the corrective compression parameter. The compression characteristics indicate a relationship between a bit rate, which is a ratio between data volume and the number of pixels of image data, and a compression parameter associated with image quality and compression rate, and acquiring an initial compression parameter acquires the initial compression parameter based on compression characteristics data of an average image and a target bit rate.

Importantly, <u>acquiring the corrective compression parameter includes acquiring from</u>

the compression characteristics data, a complexity of the image to be compressed based on the bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter, and acquiring from the compression characteristics data the corrective compression parameter based on the complexity of the image and the target bit rate (Application at Figure 3; page 13, line 10-page 15, line 4).

A conventional method includes acquiring image data having a predetermined data volume based on a data volume acquired through a pre-compression process on image data in a sampling area set in a certain position on a screen. However, this inevitably results in an increased processing time (Application a page 3, line 24-page 4, line 6).

In the claimed invention, on the other hand, acquiring the corrective compression parameter includes acquiring from the compression characteristics data, a complexity of the image to be compressed based on the bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter, and acquiring from the compression characteristics data the corrective compression parameter based on the complexity of the image and the target bit rate (Application at Figure 3; page 13, line 10-page 15, line 4). This may help to allow a compression process to be performed at a high speed (Application at page 15, lines 6-11).

II. THE ALLEGED PRIOR ART REFERENCES

A. Yovanof

The Examiner alleges that Yovanof anticipates the invention of claims 1-6, 8-15 and 18. Applicant submits, however, that there are features of the claimed invention that are not taught or suggested by Yovanof.

Yovanof discloses a method for compressing digital image data which includes adjusting the value of the Q-factor. Specifically, the method estimates the activity metric based on the average sum of the absolute value of the quantized DCT coefficients per block. A mathematical model relating the image activity metric to the Q-factor for a given value of a target compression ratio, provides an estimated Q-factor value Q_{new} that yields a pre-specified target compression ratio (Yovanof at col. 2, line 65-col. 3, line 9).

However, Applicant submits that Yovanof does not teach or suggest acquiring a corrective compression parameter including "*acquiring from the compression characteristics*

data, a complexity of the image to be compressed based on the bit rate of compressed image

data acquired in performing said compression process, and said initial compression

parameter; and acquiring from the compression characteristics data the corrective

compression parameter based on the complexity of said image and the target bit rate", as

recited, for example, in claim 1. As noted above, this may help to allow a compression

process to be performed at a high speed (Application at page 15, lines 6-11).

For example, in an exemplary aspect of the claimed invention (e.g., as illustrated in

Figure 4), a complexity (e.g., the function $Q=f_a(R)$) of the image to be compressed can be

acquired based on the initial compression parameter (Q_1) and the bit rate (R_1) of image data

generated using the initial compression parameter (Q_1), and then the corrective compression

parameter (e.g., Q_2) may be acquired based on that complexity and the target bit rate (Rs)

(e.g., determining the Q-value given by the function $Q=f_a(R)$ for the target bit rate (Rs)).

Clearly, this feature is not taught or suggested by Yovanof. Indeed, the Examiner

attempts to rely on col. 4, line 65-col. 5, line 14; col. 7, lines 32-60 to support his position that

Yovanof teaches this feature. The Examiner is incorrect.

Indeed, the Examiner states "[t]he new Q-factor is dependant upon an activity metric

which is based on the complexity of the image" (Office Action at page 3). However, the

Examiner's statement is non-responsive to Applicant's arguments. Indeed, the Examiner is

blatantly ignoring that the claimed invention of claim 1 recites "acquiring ... a complexity of

the image to be compressed". Nowhere does Yovanof teach or suggest acquiring a

complexity of the image to be compressed (e.g., acquiring the function $Q=f_a(R)$ for the image

to be compressed).

Instead, Yovanof simply teaches performing a calibration including calculating an

activity metric (A) for test images at a predetermined Q-factor value, plotting the sample

points (Q, A) and fitting the points with a mathematical model (Yovanof at col. 5, lines 28-

67). Then Yovanof calculates (see Equation 2) an activity metric (A) that is based on N_B

(number of blocks in the original image), Q_{init} (Q-factor used during first pass), q_{ij} (the

unquantized DCT coefficient) and Q_{ij} (the (i,j)th entry in the Q-table) (Yovanof at col. 6, lines

20-59). That is, nowhere does Yovanof teach or suggest acquiring the complexity of the

image to be compressed (e.g., acquiring the function $Q=f_a(R)$ for the image to be

compressed).

Moreover, Yovanof certainly does not teach or suggest acquiring the complexity based on the bit rate of compressed image data acquired in performing said compression process. In fact, the Examiner attempts to equate "[t]esting of output 424 to see if it meets target ratio" with "estimating the complexity of the image to be compressed based on the bit rate of compressed image data acquired by the compression process" (Office Action at page 5). This is clearly incorrect.

Indeed, Applicant would again point out that col. 8, lines 39-63 in Yovanof simply states that **an output 424** can be tested and if the target compression ratio (e.g., ratio of the size of image data to size of compressed image data) **for that output 424** is not met (i.e., where insufficient compression is achieved), that same output 424 may be **further compressed** (Yovanof at col. 8, lines 45-49). This is completely different from the claimed invention which acquires information indicating complexity of an image (e.g., an original image) and acquires a corrective compression parameter **based on compression characteristics data of an image having the complexity and the target bit rate**.

Indeed, Yovanof simply states that "[t]he newly estimated Q-factor is provided by a mathematical model relating the activity metric to the Q-factor" (Yovanof at col. 8, lines 52-53). Nowhere does Yovanof teach or suggest that the "newly estimated Q-factor" is provided by acquiring information indicating a complexity **of an image to be compressed**. Indeed, Yovanof is clearly not concerned with the complexity of the original image at this point because he is not using "newly estimated Q-factor" to "process" the original image. Instead, Yovanof is using the "newly estimated Q-factor" to **further compress the compressed output 424**.

Further, nowhere does Yovanof teach or suggest that the "newly estimated Q-factor" is provided based on a target bit rate. Indeed, in the claimed invention the "bit rate" may be a ratio between data volume and the number of pixels of image data. Nowhere does Yovanof teach or suggest that a target "bit rate" (e.g., a target ratio between data volume and the number of pixels of image data) has anything at all to do with selecting the "newly estimated Q-factor".

Thus, the Yovanof method is completely unrelated to the claimed invention.

Therefore, Applicant submits that there are features of the claimed invention that are not taught or suggested by Yovanof. Therefore, the Examiner is respectfully requested to

withdraw this rejection.

B.   Kuniba

The Examiner alleges that Yovanof would have been combined with Kuniba to form the invention of claims 7, 16, 17 and 19. Applicant submits, however, that these alleged references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention.

Yovanof discloses a method for compressing an image which includes estimating a new Q-factor using a mathematical model based on an activity metric (A) of test images for a predetermined Q-factor value. (Yovanof at Figure 6).

Kuniba discloses a data compression method which allegedly obtains a target scale factor NSF through a single trial (Kuniba at col. 2, lines 35-40).

However, Applicant submits that these alleged references are <u>unrelated</u>. Clearly, no person of ordinary skill in the art would have considered combining these disparate references, <u>absent impermissible hindsight</u>.

Therefore, no person of ordinary skill in the art would have considered combining these disparate references, <u>absent impermissible hindsight</u>. Therefore, Applicant respectfully submits that it **clearly would <u>not</u> have been obvious to try to combine** these disparate references by one of ordinary skill in the art, and the Examiner has <u>failed to make a prima facie case of obviousness</u>.

Moreover, neither Yovanof, nor Kuniba, nor any alleged combination teaches or suggests acquiring a corrective compression parameter including "*acquiring from the compression characteristics data, a complexity of the image to be compressed based on the bit rate of compressed image data acquired in performing said compression process, and said initial compression parameter; and acquiring from the compression characteristics data the corrective compression parameter based on the complexity of said image and the target bit rate*", as recited, for example, in claim 1. As noted above, this may help to allow a compression process to be performed at a high speed (Application at page 15, lines 6-11).as recited, or example, in claim 15 (Application at Figures 1, 3; page 11, lines 4-15).

Clearly, this novel feature is not taught or suggested by Kuniba. Indeed, as noted above, Kuniba discloses a data compression method which allegedly obtains a target scale

factor NSF through a single trial (Kuniba at col. 2, lines 35-40). Specifically, Kuniba deals with a quantization method (Kuniba at col. 12, lines 9-43), and **has nothing to do with acquiring a corrective compression parameter (e.g., Q-value).**

Therefore, Kuniba clearly does not teach or suggest <u>acquiring from the compression characteristics data, a complexity of the image to be compressed based on the bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter, and acquiring from the compression characteristics data the corrective compression parameter based on the complexity of the image and the target bit rate,</u> as in the claimed invention.   Thus, Kuniba is unrelated to the claimed invention and does not make up for the deficiencies of Yovanof.

Therefore, Applicant submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention. Therefore, Applicant respectfully request that the Examiner withdraw this rejection.

III.   FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-22, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance.   The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a <u>telephonic or personal interview.</u>

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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